

# AVIATION

MARCH 6, 1922

Issued Weekly

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Aerial View of Monaco—the Scene of Numerous Seaplane Races

VOLUME XII  
Number 10

Four  
Dollars  
a Year

## SPECIAL FEATURES

THE LIGHTER-THAN-AIR-SITUATION  
AERONAUTICAL CHAMBER OF COMMERCE ELECTION  
AIRSHIP TRANSPORT COMPANY ORGANIZED  
EUROPEAN AIR LINE REQUIREMENTS

THE GARDNER, MOFFAT CO., INC.

HIGHLAND, N. Y.

225 FOURTH AVENUE, NEW YORK



## Can You Fly?

The very fact that you have this publication in hand is evidence that you are interested in aviation.

The question then is *Can You Fly?* If you cannot fly, but have ever entertained a desire to do so, this message should be of intense interest to you.

## Why Not Learn?

Aviation is here to stay — and it has a future even brighter than many imagine. Already, greater strides are being made than most people are aware. Our training of Pilots, which was discontinued on America's entrance into the late war, has been resumed — and with facilities such as were never before known.

### SEND FOR BOOKLET IF INTERESTED

If the above thoughts appeal to you, address our School Division for further information. There will be no obligation at all and we have a complete new booklet on this particular subject, which is free for the asking. Even if you should decide you would not care for it for yourself, why not send it for someone else? Many likely young men might be glad to know of just such an opportunity as this and would appreciate your putting them in touch with it.

### DAYTON WRIGHT COMPANY

SCHOOL DIVISION

DAYTON, OHIO, U. S. A.

"The birthplace of the airplane"



GENERAL MOTORS



MARCH 6, 1922

# AVIATION

VOL. XII, NO. 10

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## THOMAS-MORSE AIRCRAFT CORPORATION



Thomas-Morse Training 2 biplane  
in flight over Ithaca, N. Y.

THOMAS-MORSE AIRCRAFT CORPORATION



## Going to Press

The photograph here shows a battery of the special glue presses for joining laminated wood parts. This careful lamination produces a unit infinitely stronger and more enduring than could possibly be shaped from a single piece of wood, while still preserving the important lightness and resiliency which are inherent to wood.

The process calls for the most careful work, the best of materials, and ideal conditions in respect to temperature and humidity of the glue room. Science and experience must be combined to secure an unshaking joint of maximum strength.

It is only one detail in the making of a Glenn L. Martin airplane; but it illustrates again the forethought, experience, and care which have placed the Glenn L. Martin planes in a position second to none in America.

**THE GLENN L. MARTIN COMPANY**  
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# AVIATION

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30 MARCH 6, 1932

No. 39

### Lessons from the Bonus

AS usual in the case of a big wreck, there are probably several aspects to the case. We hope therefore that the committee investigating the loss of the Bonus will get the full story or investigating all the different ways in which the disaster could have been prevented. The best tribute to those who died will be to do all frank and openly with all administrative errors, no matter who or what it may concern. We therefore respectfully suggest that attention be directed to the following questions:

1. Was the Liberty engine designed more powerful than the ship was originally designed for, and if so, how much more?
2. Were the streamlining surfaces designed to stand shock imposed at full power, or if not what precautions were necessary in handling them?
3. Was there such a large purchase on the controls that the radiators and elevators could have been broken by suddenly losing them 100 feet?
4. Was there any flaking of the tail, or other indications when the ship left the ground that the control surfaces were out of proper alignment?
5. Were all the engines signaled to stop as promptly as possible after the dashes of the controls?
6. What objection can there be to a multiple engine ship to having a master switch in the hands of the chief pilot by which all engines can be instantly cut?
7. Was sufficient released as promptly as possible after the dashes of the controls?
8. Was there adequate provision for quickly releasing master and fuel?
9. Was it the hydrogen or the fuel which first caught fire, and in what instant?
10. Could more men have escaped if there had been better exit facilities from the car?
11. Was it the ship flying at a safe altitude, considering its size and speed?
12. Were there enough safeguards from the design staff of the Bonus on consultation during the assembly and trials of the ship in that country?

The skepticism concerning the practicability of air travel, which was well nigh universal only a year or so ago, is gradually being dispelled by a clear comprehension of the subject. Slowly, but surely, the view is gaining ground that reliable aircraft operated by competent and conservative firms allow a means of travel as safe as any other means of communication, while at the same time the amount of time saved, and the reduction in fuel, as air travel are beginning to be more fully appreciated.

This unavoidable change is the attitude of the public in general due to a cogent practical demonstration of the safety of flying, but it could not come about in any other manner. In demonstrating this fact to the public, Aeromarine Airways has furnished far more than its share, if one considers the peculiar demonstration of "self" flying contributed by "wing walkers" and other aerial acrobats.

As we hope, the House follows the action of the Senate, and endorses the Wadsworth-Bucks bill, there will become available a permanent agency for regulating the kind of flying which is distinctly harmful to the best interests of American civil aviation.

### Guiding Airplanes through Fog

AN interesting device for guiding airplanes through fog and thick weather has recently been tried with success in France. This device, invented by M. Leib, briefly consists in establishing along a runway a ground wave through which an alternative high-frequency current is sent. The magnetic field created by this wave is detected on board the airplane by radio direction finders which indicate with remarkable precision the vertical and horizontal angles between the course of the airplane and the ground wave.

It will readily be seen that by means of this device a pilot flying in fog is enabled to determine not only whether he is drifting off his course, but also his vertical distance from the wire. Therefore, if such a wave is so established as to follow the elevation of the ground, flying in fog across mountainous country becomes practicable, for the radio detector will constantly show the pilot his height above the wire, and thus he will not have to fear colliding with a mountain top.

Most of the greatest difficulties of this system appear to have been overcome, but it is afflirmed unhesitatingly that a section of the Paris-London airway is shortly to be equipped with the Leib "guide-cable" as the device is called. Not the least interesting point about this device is that it only requires a ground wire of small diameter, and that it can be suspended on existing telegraph poles. The expense involved is thus small in comparison with the services it is called upon to render. The practical demonstration of the Leib guide cable will therefore be watched with considerable interest.

### Commercial Aviation in America

PERHAPS the most encouraging sign of the present year with regard to commercial aviation is the remarkable expansion in the activities of Aeromarine Airways in Florida. The list of passengers carried during the last few weeks by the flying boats of the "Black Tal Fleet"—as the steamer is called on account of its home port—includes many names prominent in the world of finance, industry and sports. This affords an interesting indication of the attitude the high-class traveling public is beginning to take in regard to public air transport.

# The Lighter-than-Air Situation

Official Inquiry into the Roma Accident -- New Helium Appropriation Sought -- Fate of the U. S. Navy Zeppelin

The accidental loss of the Army airship Roma, recorded in our last issue, has in a way brought to a head the situation of the lighter-than-air situation in the United States. While the official inquiry at one way, it does not seem proper to comment on that disastrous accident, now much as it may assist and occupy. On the editorial page of this issue attention is directed to several factors which singly or in combination may have brought about the loss of this magnificent airship. In this connection the reader's attention is directed to the accompanying photos which were taken before the accident occurred, and which show the actual place of the Roma at a considerable angle with the horizontal -- that is, in an abnormal position.

## The Casualty List

Following is the casualty list of the Roma, revised to the date when this issue goes to press:

Present -- Maj. G. T. Gandy, St. Louis, Mo.; Walter W. Vassar, Ensign; Capt. Dixie Mahay, Tucson, Ariz.; Capt. George B. Weller, Indianapolis, Ind.; Capt. Allen P. McFarland, Indianapolis, Ind.; Capt. Frederick J. Derrida, Dayton, Ohio; Lt. Comdr. John E. Hull, Kankakee, Ill.; Lt. Comdr. William C. Barnes, Brooklyn, N. Y.; Lt. Comdr. William E. Riley, New York City; Lt. Comdr. Edward E. Rutherford, New York City; Lt. Comdr. W. H. C. Gandy, Gadsden, Tenn.; Lt. Comdr. Andrew V. Clinton, Savannah, Ga.; Lt. Comdr. Harold K. Hines, Bradenton, Conn.; Master Sergt. Roger C. McNally, Philadelphia, Pa.; Master Sergt. James Hanney, New York; Master Sergt. Homer Gandy, Raymond City, W. Va.; Technical Sergt. Lee M. Barnes, Langley Field, Va.; Staff Sergt. Louis Hillard, Cold, Md.; Master Sergt. Robert W. Ladd, Jr., Philadelphia, Pa.; Master Sergt. John W. Clegg, Wright-Patterson Field, Dayton, Ohio; Master Sergt. Edward E. Schenck, Red Bank, N. J.; Staff Sergt. Edward E. Schenck, Red Bank; S. J. J.; Staff Sergt. James M. Hodges, Ashland, Ky.; Corp. Irvin B. Haynes, Elwood, Ind.; Pte. Peter C. E. Thompson, Beckleyville, N. C.; Private 1st Cl. Marion Hill, Norton, Ill.; Private 1st Cl. Fredric E. Johnson, Louisville, Ky.; Private Thomas M. Shadley, San Francisco; 1st Cl. Corp. Virgil C. Johnson, Lakewood, Wash.; 1st Cl. Corp. John McLean, McLean Field, Dayton, Ohio; Robert J. Higgins, McLean Field, Dayton, Ohio; W. G. Langley, McLean Field, Dayton, Ohio; Charles E. Shaeferberg, McLean Field, Dayton, Ohio; T. H. Hermanns, McLean Field, Dayton, Ohio.

Present -- Maj. D. B. Readon, Washington, D. C. (Post-graduate student of flight, expected to receive); Capt. Walter J. Koen, New York; Lt. Comdr. C. C. Gandy, W. Va.; Captain (Maj. Gen. rank), Lt. Comdr. J. C. Hart, B. B. Hart, New York City (Minor injuries); Master Sergt. Harry A. Chapman, Jr., Joseph E. Rice (Mildly hurt, expected to recover); Corp. Albert O. Flores, Norfolk, Va.; Master Sergt. Joseph W. Fenderback, Akron, Ohio (Minor injuries); 1st Cl. Corp. W. D. Duncanson, McLean Field, Dayton, Ohio (Slight injury, expected to recover); Master Sgt. McLean, Bremerton, Washington, B. B. Hart, (Minor injuries); 1st Cl. Ray Shirley, McLean Field, Dayton, Ohio (Minor injuries).

Present -- Presente Vazquez T. Park, Trenton, Ind.

## A Letter

The following letter is of considerable interest in that it represents the views of an eyewitness regarding the fate of the Roma and her crew on a trip previous to that which ended so tragically.

Present: 25, 1932

Master Sgt. Mario T. Patrick,  
Chief, Army Air Service  
Gas

Through your courting the winter made the return trip to Langley Field on the Roma following the christening cere-

memon on Dec. 20. In view of the publications today of a report made to the late Lt. Clifford Shaefer, one of the Roma's officers, Tuesday's disaster, in which the statement is made legal to have been made that, unfortunately at least, places you in the bad light of ordering an unsafe ship to make the return flight, I think it only just to you and to the commanding officer of the Roma that you be informed, for such use as you make of what I learned, about the condition of the ship on its arrival and from my observations on the return trip.

During the christening exercises, I held a long conference with Major Thorsell and another with Captain Mahay, both of whom I knew personally, with special reference to the maneuvering ability of the Roma and the probability of the necessary steering plates and rudder, under the handicap of a strong head wind and the loss of nearly 60 per cent of motive power on the trip to Washington, in comparison with the distance of 100 miles to the return rudder test.

Both were confident and sure the ship answered its controls and insisted that the only real trouble experienced was the flailing of two engines, stopping them, and the development of mechanical trouble in another which presented no grave anomalies however. Neither of these officers gave the slightest indication that the controls had given the first sign of trouble as had not worked perfectly. Their discussions of the ship's performance were excellent.

On the return trip Captain Mahay took pains to show me the case and evidently with which the Roma answered his controls. An unusual opportunity to demonstrate this was given in the attempt to land at Langley Field, which had to be made through a cross wind -- the wind blowing was from one direction of the ship's stream, the same on the ground as indicated in between.

The ship arrived after dark. Landing straightforward was impossible with ground wind direction and the direction indicated by the vanes on top of the hangar. Coming down in nose-down with the landing direction, the ship was caught in the eddy and headed directly into the side of the hangar. Captain Mahay, at the controls, apparently realized instantly what was happening. He advised all engines to full speed, rapidly, and the aircraft responded to the command, the ship being at a certain amount of height. The Roma responded beautifully and automatically and literally wrapped up in danger.

The same thing occurred three times. Each time the Roma was compelled to either reverse the elevator and rudder about instantaneously to avoid disaster. On the fourth attempt Major Thorsell Captain Mahay had to land the craft cross wind, but headed directly into the hangar with the same result as presented on landing her at Bolling Field. Had there been any great sluggishness, such as is usual to have been described by Lieutenant Sustella, or had she destroyed or refused to obey her master's commands in any material degree, the first and last flight at the Roma would have ended disastrously in Bolling.

In writing the story of the flight on the Roma I stated that with even one who has known or perhaps one who less well could do so frequently.

The following is of considerable interest in that it represents the views of an eyewitness regarding the fate of the Roma and her crew on a trip previous to that which ended so tragically.

March 4, 1933

AVIATION

mission mentioned above was performed with only two engines and that, in my opinion, further entitles the charge that the elevator and rudder were not working properly.

(Signed) THOMAS H. DODGE  
Naval Correspondent See Photo

## New Appropriation for Roma Development Sought

The question of whether or not the Government should immediately appropriate of helium for airship reduction was discussed yesterday at a Cabinet meeting held at the White House on Feb. 26.

Upon the discussion regarding the loss of the Army airship Roma, Secretary Fall of the Interior Department is said to have announced that the War and Navy Department would

put \$5,000,000 per cent parity per day. Operating at full capacity, he said, the plant should be able to produce 35,000 cu. ft. of helium at \$1 per day, but that lack of appropriation had probably caused the closing of the plant. He said, also, that nearly \$80,000,000 cu. ft. of helium gas is going to waste annually.

The practical use of the inert helium gas, as at present, was recently demonstrated by Admiral Moffett, head of the Naval Bureau of Aeronautics, who had the naval airship C-7 filled with the gas as an experiment. Great success attended the tests, both as to the lift and ease of operation of the craft. The gas as used was recovered from the bag and turned over to the Army for analysis and publication with a view to its further use as a research.

Admiral Moffett pointed out that the accidents to the Naval airship



THE ROMA

Now the Roma appears (dark) under the angle of the electric-rubber cell with the horizontal and plane. The rear engine alone is stopped.

likely ask Congress for an appropriation of approximately \$10,000,000 for the extraction of helium from the natural gas pools in the country for the extraction of helium from the natural gas pools in the country for the use in airships. It is believed by nearly all Government experts, that helium, if it did not already solve the problem of safety in airships, at least would at least eliminate one great fear of them.

In addition to the well-known sources in Texas, Secretary Fall mentioned Colorado, a state on which we are developing natural gas fields, Pennsylvania, Ohio, Kansas, Oklahoma and Indiana where helium-bearing natural gas was available. Following the work already done by the Government on an experimental basis for the Army and Navy, Secretary Fall mentioned the plants at Fort Worth and Patricia, Tex., which were practically closed recently because of lack of Congress appropriation. At Fort Worth, the helium plant, which is the only one in the country, amounted to about \$4,000,000 cu. ft. of helium, estimated at a cost of about \$3 cents per cubic foot. This is the first official estimation of the total amount of helium produced to date, which so far was understood to be \$1,000,000 cu. ft. The Government, Secretary Fall said, hoped to produce helium in quantities so that it will be available for commercial lighter-than-air use as well as for the use of the Army and Navy.

The creation of gas plants at other favorable places was also mentioned by Secretary Fall. Recently it was announced at the Bureau of Mines that the Government has one or two gas fields in the United States which should soon supply enough helium for the operation of a conservative lighter-than-air program for the next twenty years, and that this country would be the only source of helium in commercial quantities in the world.

## Present Helium Production Capacity

The present Government helium plant, Dr. Herbert E. Moore in a recent interview, is producing from \$0,000 to \$2,000

cu. ft. of 95 per cent purity per day. Operating at full capacity, he said, the plant should be able to produce 35,000 cu. ft. of helium at \$1 per day, but that lack of appropriation had probably caused the closing of the plant. He said, also, that nearly \$80,000,000 cu. ft. of helium gas is going to waste annually.

## Causes of the Crash

Unlike the ER2, which was a rigid ship, the Roma was not subject to writer's law because by a firm wind, her gas囊ules would have been torn from the envelope and she would have been driven by means of disengaging into seven gas cells. Her V-shaped keel, which was her only rigid part, was broken and remained a long survivor with a large opening nose about midships for the two pilots, and the slightly separated passenger cabin, together with spaces for supplies and the crew. Along the sides of the hull were port holes and the crew's entrance. The crew's entrance was on the left side of the hull, and the entrance to the gas囊ules was on the right side. The crew's entrance was six gas囊ules in number, in which actually were the Ansaldi engines, easily replaced with Leibert's.

## Major Thorsell

Major Thorsell, Captain Mahay and Lieutenant Wood were detailed by the Army to go to Italy, study the ship and supervise her packing when the Government decided to purchase the craft in 1928. When the ship reached Langley Field, they supervised her landing and took her to the United States. They were present at the accident at Langley Field, Oct. 26, 1932. One of the first things they did was to inspect the envelope for any possible first accident; one of the preludes thereof was a split which had the entire envelope and purchased one of the gas囊ules.

Only the pressure of mind of several of the mechanics saved the ship from destruction at that time. Sgt. Lee M. Barnes realizing the danger of the hydrogen becoming ignited by the spark and exhaust from his engine, immediately shut his engine off, and with Sergt. Wm. P. Clark and C. E. Bransford







The passenger cabin should allow for sufficient storage of hand baggage, and a small baggage room fitted with a lock should in addition be provided. The luggage room should allow for the storage of two trunks, 30x18x9 in. in first class airplanes and suspension, and of six trunks of the same on second class airplanes and suspension. Airplanes and airplanes of the second class should be fitted with a total compartment 94 cu. in. square, which it should also be possible to lock.

#### Radios and Fuel Capacity

Airplanes and seaplanes of the second class should be provided with a radio sending and receiving apparatus. The antenna should be mounted so as not to hang below the fuselage and the aerial should be so mounted that the sending and receiving part of the radio should be fitted in a separate cabin. If the signals are received by another system, it should be possible to hear them even if the engine is running "all out."

In addition to the fixed load required for the raising of aircraft above the ground, for the carrying of passengers or cargo, the total load should have an additional capacity, permitting a flight of 200 km. (120 miles) in excess of the figures given.

#### Transport by Rail

With the wings dismantled, the airplane or seaplane should be transportable on normal railroad cars without requiring further dismantling. Seaplanes should be provided with

hanging shockles. This provision also is desirable on seaplanes.

#### Classification of Qualities

Assuming equal qualities of airworthiness, and in the case of airplanes, also of aeroworthiness, the difference in rating of airplanes varying in class may be indicated by the following classification:

**Principal Endurance Conditions:**—(1) Lowest fuel consumption. (2) Power of purchase. (3) Dismantle and transport by rail. (4) Landing and take-off.

**Other Endurance and Economic Conditions:**—(1) Economy power plant. (2) Improved power plant. (3) Aeroworthiness with reduced horsepower and varying loads. (4) Adaptability at power plant to the use of different fuels and different temperatures. (5) Constructional features concerning the use of power plant, freight, weight, and fuel economy. (6) Aerodynamic features of wings, efficient conversion of power plant, and the use of different fuel. (7) Cost of manufacture, construction of wings, efficient conversion of power plant, and the use of different fuel. (8) Flying with changeable fuel load and freight, and ease in starting flight. (9) Passenger comfort and improvements in freight loading. (10) Possibilities of conversion of load undergoing to any undercarriage, and features of rapid dismantling. (11) Convertibility of cabin from passenger to freight loading. (12) Possibilities of conversion of load undergoing to any undercarriage, and features of rapid dismantling. (13) Convertibility of cabin from passenger to freight use, for summer and winter service, etc.

March 5, 1922

# "Who's Who in American Aeronautics"

(Copyright, 1922, by the author, Major G. H. Smith.)

The biographical sketches of men who are prominent in American aeronautics are printed periodically in *AVIATION*. The first series will be shortly published in a more durable form, and revised copies will be published continuously in this issue of the biographical sketches in series of three and May issues, and such other changes as may occur. As errors and omissions are liable to occur in a compilation of this character, interested parties are requested to notify "Who's Who" Editor of the necessary corrections as the second may be kept up to date.

#### Michael Gorger

**GEOFFREY MORSE**, Representative Engineer, General Electric Co., 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## Foreign News

### Argentina

A call for bids has been received from the Argentine Director General of Navigation and Ports for 4 seaplanes, with two extra motors, spare parts, etc., to be used on the Bermejo River. The seaplanes must have a carrying capacity of 8 persons, seated, including the pilot, in addition to a mechanic. Delivery must be made in Buenos Aires within five months after award has been made.

### Brazil

According to a correspondent of the *London Times*, the President of Brazil has given his assent to an Act authorizing the expenditure of over £235,000 for the establishment of two aerial routes between the capital and Porto Alegre (in Rio Grande Do Sul). The one route, which is for seaplanes, will follow the coast while the other will be inland, following the railways where possible. The routes are to be inaugurated before the opening of the Centennial Exhibition next September. Their primary object is military defense, but the routes may be used for commerce, with the Government's consent. Wireless telephone and telegraph stations with a range of 300 miles are to be established at convenient points at a minimum distance of 190 miles apart, and at the terminal points there will be powerful plants capable of direct intercommunication. Modern meteorological stations are also included in the scheme.

### England

The report of the Director of Medical Services, Col. M. H. G. Fell, Royal Air Force, for 1920 gives the number of flying accidents during the year as 71, of which number 39 occurred in the United Kingdom and 32 overseas, resulting in 14 deaths at home and 15 overseas. There was only one accident among the cadets, which was not of a serious nature, and a single death occurred among the N.C.O. observers.

### France

Two French airmen, MM. Denlin and de Marquier, have mapped out the Paris-Constantinople air route by their initial flight out and back in 35 hr. of actual flying. After leaving Paris they made long halts at Strasbourg, Prague, Budapest, Belgrade and Bukarest. The distance of 1,770 miles from Paris to Constantinople was covered in 17 hr. of effective flight. The return journey from Constantinople to Paris was made in 18 hr. of actual flight.

### Sierra

During his "round-the-world" journeying, Lord Northcliffe made a stay at Bangkok, and on Dec. 23 he visited the air-drome at Don Muang, where Sir Ross Smith alighted during his Australian flight in 1919. The *London Times* correspondent states that Lord Northcliffe was surprised to find the air station equal to most of those in Europe. Siamese, he states, has 25 landing places and five airfields. At Don Muang there are 115 planes, including school machines and a staff of 650 men.

### Switzerland

The Swiss Government has decided to increase the financial help that it is giving to civil aviation, and is prepared to assist in the establishment next year of a Swiss air mail to connect with international services. In the budget for 1922 the program for subsidizing civil aviation contemplates the increase of the military grant for each service pilot from 200 francs to 400 francs, also provision for grants in aid to enable civil aviation concerns to buy modern transport machines.

### Syria

A new air service has been instituted in Syria between Latakia and Homs. Two journeys each way are, according to the *Paris Temps*, made per week, as on the similar services between Aleppo and Deir-Zor, Aleppo and Aintab, and Aleppo and Alexandretta. Services are also to be opened between Damascus and Palmyra and Damascus and Sowida (Hanran). A number of packages were carried on the Levant services, and in November, 31 wounded or sick were evacuated by airplane without accident.



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